

California Monthly Climate Summary July 2012

Weather Highlights

July 2012 was a cooler than average, near average precipitation month for California. According to the Western Region Climate Center's [California Climate Tracker](#), the monthly average temperature was 71.9°F which is 0.8°F lower than the long-term average of 72.8°F. With a statewide average of 0.17 inches, precipitation was 94% of average. Water year 2012 has seen 7 months of below normal precipitation and 6 months of above normal temperature. Plots of the last 12 months of mean temperature and precipitation relative to the historical distribution are shown at the end of the report.

July started with high pressure sitting just to the east of California. A low pressure system moving through the Pacific Northwest brought cooler than normal temperatures for Northern California. As the high pressure system over the Central United States started to move westward, temperatures started increasing with some Central Valley locations topping 100°F. The second week of July continued the hot temperatures with the Central Valley topping 100°F in many locations and the desert southeast clearing 110°F. Thunderstorm activity in Southern California brought rare summertime rainfall to some south coastal areas. The third week of July saw a troughing pattern develop with onshore flow cooling California. Monsoonal flow moved over the State with thunderstorms dropping over an inch of rain in some locations. The week closed out with high pressure building in and warmer temperatures returning to inland areas. The month closed out with continued monsoonal flow producing local thunderstorms.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 40 temperature records tied or broken and 17 precipitation records set or tied for the month. Of the 40 temperature records set, 13 were for new high maximum temperatures and 14 were for new low maximum temperatures. Records were set over 19 days of the month. Nine of the 17 precipitation records were for traces of rain. The largest record setting rain for the month occurred in Needles, CA on July 14 when 0.91 inches fell. This breaks the old record of 0.70 inches set in 1990. On July 12th, Death Valley set a new high minimum temperature record with a reading of 107°F. The old record was 100°F set back in 1931. The all-time high minimum temperature record at Death Valley is 110°F set on July 5, 1918.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 15 stations recorded a minimum temperature below freezing in July while 84 stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC stations is also shown at the end of the summary.

Precipitation in July was mixed for the different regions in the State. For the CDEC precipitation gages for July 2012, the largest amount of precipitation recorded was at Blythe in the Colorado River Desert region with 1.88 inches. This is 989% of the average precipitation for this station for July. At the other end of the spectrum, 55 stations reported zero precipitation for the month. For the CIMIS network, Seeley in Imperial County topped the precipitation charts with 2.7 inches for the month and 89 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network.

The 8-Station Index for northern California precipitation recorded 0.2 inches in July with two days of precipitation. On average, 0.2 inches of precipitation is recorded for the 8-Station index for the month. Statewide, the average precipitation for the month was 166.5% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

July 2012 continues California's fourth year with CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns. A map from July 23, 2012 when some monsoon moisture dropped some rain east of Sacramento is shown at the end of the document. Currently, California has 880 volunteers signed up spanning 53 of California's 58 counties. The counties without volunteers are Alpine, Colusa, Glenn, Modoc, and Tuolumne. The county with the most volunteers is Sonoma with 93 volunteers. For the month of July, 8,492 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA for the month was in Placer County where 0.83 inches was recorded on 07/23/2012. No snowfall reports were recorded. One hail report was submitted on July 23rd from Placer County. The largest stone size reported was 1/4". For more information on CoCoRaHS, please visit <http://www.cocorahs.org>.

Snowpack and Water Supply Conditions

The automated snow sensor network in California became snow free in June. The spring runoff season (April-July) has completed as well. Snowmelt runoff for the State was below normal due to dry winter conditions. April-July runoff in the Sacramento River Region from Bend to the American River was 84% of average. The San Joaquin River Region from the Cosumnes to the San Joaquin River produced only 51% of average April-July runoff and the Tulare Region from the Kings to the Kern Rivers recorded only 46% of average April-July runoff. The Water Supply Index for WY 2011 was wet for the Sacramento Basin and wet for the San Joaquin Basin. Water year 2010 resulted in a below normal category for the Sacramento Basin and above normal category for the San Joaquin Basin for the Water Supply Index (WSI). The median forecast for the WSI for WY2012 predicts the Sacramento Basin will fall into the below normal category and the San Joaquin will fall into the dry category. Water supply

information for California can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at <http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST>.

Drought Monitor and Seasonal Outlook

The maps for California for June 26, 2012 and July 31, 2012 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website <http://drought.unl.edu/dm/>. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the July 31st depiction, 0.29% of the State is depicted in the D3 or extreme drought category, 23.31% of California is depicted in the D2 or severe drought category, 40.2% of California is depicted in the D1 or moderate drought category. An additional 24.56% of the state is depicted as D0 or abnormally dry. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for August through September from NOAA depicts California in persisting drought throughout most of the state. This forecast is based primarily on climatology and forecast models. More information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html. Updates are provided twice per month.

The California Nevada River Forecast Center developed some drought monitoring tools for California that are now available on CDEC and are automatically updated. These tools look at the frequency associated with precipitation deficits for the Northern Sierra Eight Station Index and the San Joaquin Five Station Index. Another tool looks at the frequency of end-of-month storage for select reservoirs in California. The frequencies of the observations are related to the Drought Monitor's drought categories D0 through D4. The links can be found on the State Climatologist web page and are repeated here: <http://cdec.water.ca.gov/cdecapp/drought/getres.action> (California Reservoirs – Drought Status) <http://cdec.water.ca.gov/cdecapp/drought/get8SI.action> (Sacramento River Drought Status) <http://cdec.water.ca.gov/cdecapp/drought/get5SI.action> (San Joaquin River Status)

For July, the Eight Station Index is in the 36th percentile for the 12-month period and the Five Station Index is in the 15th percentile for the 12-month period. The 15th percentile is associated with a D1 designation. For the reservoirs, Casitas, and Isabella are in the D1 category. Pine Flat is in the D0 category. All other reservoirs in the report are in drought free conditions. California's reservoirs as a group fell below their historical average storage in July 2012. Water year 2011 ended with reservoirs at the top of their conservation pools headed into water year 2012 and the flood season (October through March). A below-average spring runoff in 2012 resulted in reservoir storage peaking at the end of April at 113 percent of average. The statewide end-of-July storage is 98 percent of average which is the first below average end-of-July storage since water year 2009. Above average temperatures in August will likely drive storage down further below average. A table of regional storage for the end of July is shown below. For more information on drought conditions in California, visit <http://www.water.ca.gov/waterconditions/>.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) has transitioned to neutral conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have moved towards positive values with the Niño 3.4 region posting a reading of 0.6°C anomaly at the end of July. The May through July 3-month running mean of the Ocean Niño Index (ONI) is 0.0. Five consecutive ONI values need to be below the threshold of -0.5 for conditions to be classified as a La Niña event (five consecutive values above the 0.5 threshold need to be observed for classification as an El Niño event). Most forecast models have the tropical sea surface temperatures moving to El Niño conditions during the second half of 2012. More information can be found at the Climate Prediction Center's web site:

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/

Updates are posted weekly. The latest three month outlook (August through October) from NOAA indicates equal chances of above average, near average, or below average temperatures for the whole State. For precipitation, equal chances of above, near, or below normal precipitation stand throughout the State with the exception of the southern part of the state which is forecast to have an increased probability of above normal precipitation associated with a westward displacement of the North American Monsoon. Outlook plots and discussions can be found at <http://www.wrcc.dri.edu/longrang/>. General weather information of interest can be found at <http://www.noaawatch.gov/>. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

July 2012 saw further development of crops throughout the State. Wheat crop harvest continued along with the cutting and baling of alfalfa. Cotton development was showing good fruit retention and low pest pressure. Cotton and rice crops were rated mostly good to excellent. Apricot harvest was winding down while peach, nectarine, plum harvests continued. Gala apple harvest began while wine grapes were coloring and sugaring. Kiwis were flowering and figs continued to develop. Almond hull split continued with harvest expected to start soon. Walnut, pistachio, and pecan orchards continued good developmental progress. Vegetable crops were progressing well while others were harvested. Rangeland conditions progressed through their summer deterioration. Supplemental feeding increased. For further crop information see <http://www.nass.usda.gov/index.asp>.

Other Climate Summaries

[California Climate Tracker](#) (new product of Western Region Climate Center)

[Golden Gate Weather Service Climate Summary](#)

[NOAA Monthly State of the Climate Report](#)

Statewide Extremes (CDEC)

High Temperature – 120°F (Rice Valley, Colorado River Desert)

Low Temperature – 28°F (Upper Burnt Corral, Tulare Basin)

High Precipitation – 1.88 inches (Blythe, Colorado River Desert)

Low Precipitation – 0.0 inches (55 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 109.6°F (Seeley, Imperial County)

Low Average Minimum Temperature – 43.8°F (Alturas, Modoc County)

High Precipitation – 2.7 inches (Seeley, Imperial County)*

Low Precipitation – 0 inches (89 stations)

*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reportig			Stations Reporting			% of Historic Average	
		Basins	Jul	Oct-Jul	Stations	Jul	Oct-Jul	Jul	Oct-Jul
North Coast	0.27	5	5	5	17	12	12	322.6%	92%
SF Bay	0.03	2	2	2	6	4	4	33.3%	82%
Central Coast	0.06	3	3	3	11	8	7	18.2%	70%
South Coast	0.06	3	3	3	14	10	10	686.5%	67%
Sacramento River	0.26	5	5	5	42	30	30	58.5%	78%
San Joaquin River	0.12	6	6	6	24	19	17	19.4%	69%
Tulare Lake	0.07	5	5	5	28	23	25	16.5%	76%
North Lahontan	0.04	3	3	3	13	7	7	91.7%	58%
South Lahontan	0.06	3	2	2	15	8	8	26.4%	38%
Colorado River	0.03	1	1	1	6	5	4	405.8%	70%
Statewide Weighted Average	1	36	35	35	176	126	124	166.5%	76.1%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	23	44.0	65.9	91.3
SF Bay	9	47.1	67.8	95.8
Central Coast	11	45.4	69.5	97.1
South Coast	37	50.3	72.5	98.8
Sacramento	74	45.9	70.6	95.3
San Joaquin	43	45.4	67.7	91.7
Tulare Lake	16	44.2	66.8	89.5
North Lahontan	25	40.5	60.9	81.5
South Lahontan	15	45.2	66.9	89.5
Colorado River Desert	6	67.7	90.4	114.7
Statewide Weighted Average	259	45.9	68.7	93.4

End-of-July Reservoir Storage in Thousand Acre-Feet (taf) by Hydrologic Region

End-of-July Reservoir Storage	Number of Reservoirs	Average Storage (taf)	2012 Storage (taf)	% of Average
North Coast	6	2,335	2,468	106%
San Francisco Bay	17	469	453	97%
Central Coast	6	622	610	98%
South Coast	29	1,420	1,365	96%
Sacramento	43	11,809	11,972	101%
San Joaquin	34	7,552	7,065	94%
Tulare	6	1,053	648	62%
North Lahontan	5	649	739	114%
South Lahontan	8	306	278	91%
Total	154	26,215	25,598	98%

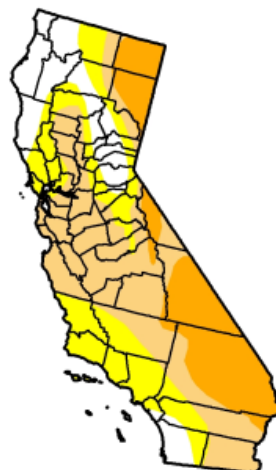
U.S. Drought Monitor

California

June 26, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	15.89	84.11	59.51	22.76	0.00	0.00
Last Week (06/19/2012 map)	15.89	84.11	59.51	22.60	0.00	0.00
3 Months Ago (03/27/2012 map)	2.22	97.78	89.61	46.25	0.00	0.00
Start of Calendar Year (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
One Year Ago (06/21/2011 map)	99.99	0.01	0.00	0.00	0.00	0.00

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, June 28, 2012
Richard Heim, National Climatic Data Center, NOAA

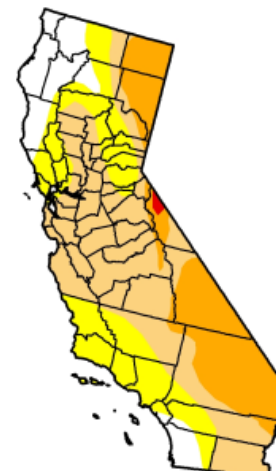
U.S. Drought Monitor

California

July 31, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	11.64	88.36	63.80	23.60	0.29	0.00
Last Week (07/24/2012 map)	11.64	88.36	63.80	26.85	0.29	0.00
3 Months Ago (05/01/2012 map)	15.84	84.16	58.97	21.14	0.00	0.00
Start of Calendar Year (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
One Year Ago (07/26/2011 map)	85.34	14.66	0.00	0.00	0.00	0.00

Intensity:

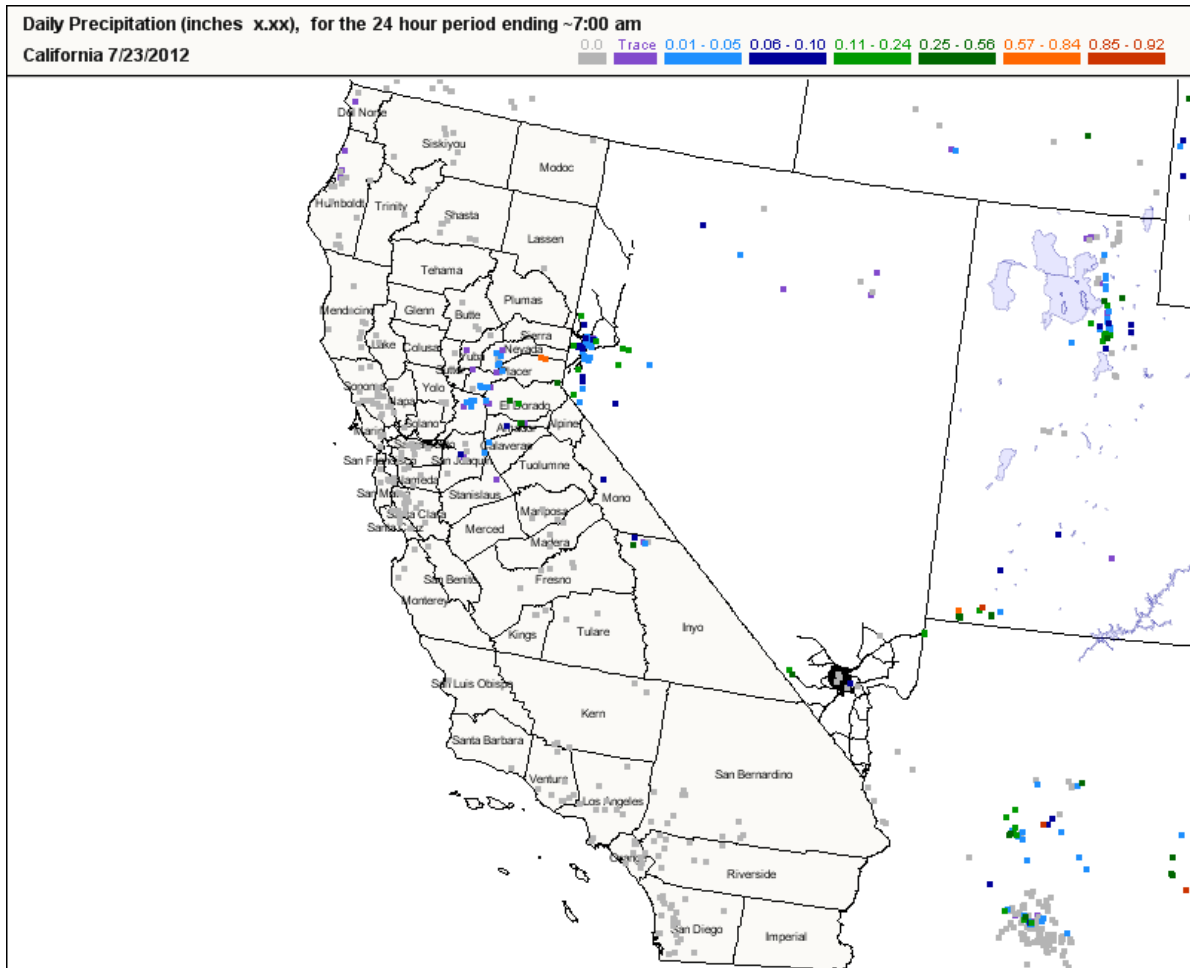


The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



Released Thursday, August 2, 2012
Mark Svoboda, National Drought Mitigation Center



California Statewide Last 12 Months

